

Title Prediction of the amino acid composition in brown rice using different sample status by near-infrared reflectance spectroscopy

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Keywords Brownrice; Calibration equation; Near-infraredreflectancespectroscopy (NIRS); Aminoacid; Foodstuff

Abstract

In this study, 279 samples of brownrice grains and their flour, selected from a larger original population, were scanned by NIRSystem model 5000 mono-chromator in these two kinds of samplestatus for near-infraredreflectancespectroscopy (NIRS) analysis. Spectral pretreatment method 2,8,8,1 combined with SNV + D scatter correction was found suitable for developing calibration equations for aminoacids. Equations for total aminoacid content and for all individual aminoacids, excluding cystine, methionine and tyrosine, were developed with this spectral pretreatment method. These equations had low SEC V (0.010–0.063%) and SEP (0.011–0.066%); with high $1 - VR$ (0.878–0.960), R^2 (0.837–0.947) and SD/SEP (2.421–4.333). The results suggest that equations for the thirteen aminoacids from the two sample categories can be directly used to estimate the aminoacidcomposition in brownrice. This indicates once more that NIRS is a powerful technology that could be very useful for the determination of aminoacid content in breeding programs that involve brownrice as well as for quality control in the food industry.